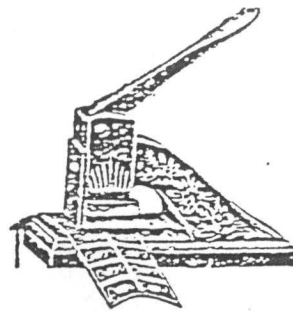


## HOW PERFIN MACHINES ARE MADE



by David Stump

First, there are six different types of Perfin Machines. There are those with one, two, three, five, ten, and one hundred dies. To the best of my knowledge, only the "SP" and the "GT" have the 100-die models. Some are operated by hand, and some by electric motor, but the actual operation of the machine has nothing to do with the way it is constructed.

The one-die machine is made differently from the others. Two steel bars, about three feet in length, are bolted together. The female bar is one inch wide and about one-eighth inch thick. The male bar is the same width, but about three-eighths of an inch thick. For the drilling operation, the female bar is uppermost. The desired design is drawn carefully on the female bar in pencil, and then a high-speed drill with a 7/16th inch stop on it, is directed to the starter dents and a hole is drilled completely through the female bar, but not quite through the male bar. The automatic stop takes care of that.

The two bars are then placed on a power shear and cut off, so that the two pieces containing the holes are about one-inch square. Then the pins are driven in the male bar, but are not welded or fastened in any manner. (This explains why they sometimes come out!) The pins stick out about one-half inch on the male bar. This bar is then welded to the Perfin Machine, and always to the top of the machine.

Next, the female bar is placed over the male section (pins will be in the female slots or holes), the machine is closed, and then is welded into place. The method used explains why there are times when the holes made are not precisely evenly spaced, some being a bit close. This has all been hand work, and the accuracy depends on the punching operation.

In making multiple die-heads for Perfin Machines, an entirely different method is used. The design is not marked on the bar, but is marked on a one-inch-wide metal template. This template is then drilled and examined by holding up to the light to ensure correct spacing of the holes, with a resultant better spacing of the holes.

This thin template is then placed on top of the female bar, to which has been bolted the male bar, and the holes are drilled through the two bars, much in the same manner as for the single die-head. Next, the template is moved across about an inch or

the two bars and the next set of holes is drilled. This process continues until the correct number of holes has been drilled in each of the dies which appear on the bar. This may be two, three, five, or ten dies. Then the two bars are sheared to the proper length that accommodates the number of die-heads that are being made. They are then pinned, and welded, in the same manner as the single die-bars were done. Now, if the template was right-side up, or wrong-side up, it makes no difference to the worker who drills the holes, provided that he starts and finishes the same way.

The template is marked and stored away, so that if, at some later date, another machine may be ordered, then the same template is brought out and a new multiple die is made. If there were two ten-die machines made, by the time the twentieth set of holes has been drilled, the template holes may be considerably at variance with the first hole drilled.

There is one other consideration. The template is very thin, perhaps about 20-gauge. It is much softer than the steel bars, and of course, many times softer than the extremely hard steel drill. Therefore, after drilling through the holes several times, the template holes keep getting larger and larger, with the resulting variation in size as the end of the bit is reached. Thus it is easy to understand why some slightly different sized Perfins are made by the same head of one machine. These slight differences rarely indicate that a new machine has been made. The human equation is ever present in the several steps of manufacture, and difference of 1/4 to 1/2 mm. can usually be ignored.